

**WEST**

## Freeform Search

**Database:**  US Patents Full-Text Database  
 US Pre-Grant Publication Full-Text Database  
 JPO Abstracts Database  
 EPO Abstracts Database  
 Derwent World Patents Index  
 IBM Technical Disclosure Bulletins

**Term:** L1 and (private adj server\$)

**Display:** 10  Documents in Display Format:  KWIC Starting with Number 1

**Generate:**  Hit List  Hit Count  Side by Side  Image

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### Search History

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**DATE:** Wednesday, July 09, 2003 [Printable Copy](#) [Create Case](#)

Set Name Query  
side by side

Hit Count Set Name  
result set

DB=USPT; PLUR=YES; OP=ADJ

<u>L6</u>	L1 and (private adj server\$)	21	<u>L6</u>
<u>L5</u>	L1 and (server adj1 provider\$).ab.	2	<u>L5</u>
<u>L4</u>	L1 and (server adj2 provider\$)	171	<u>L4</u>
<u>L3</u>	L1 and (lan adj2 provider\$)	15	<u>L3</u>
<u>L2</u>	L1 and (lan with provider\$)	173	<u>L2</u>
<u>L1</u>	((709/\$)!..CCLS.)	16227	<u>L1</u>

END OF SEARCH HISTORY

Set Name Query  
side by side

DB=USPT; PLUR=YES; OP=ADJ

		<u>Hit Count</u>	<u>Set Name</u>
		result set	
<u>L3</u>	L2 and (switch\$ or multiplex\$)	5	<u>L3</u>
<u>L2</u>	L1 and tunnel\$	5	<u>L2</u>
<u>L1</u>	(virtual adj2 (server\$ or lan\$ or wan\$)).ab.	45	<u>L1</u>

END OF SEARCH HISTORY

1 2 3 .

Set Name Query  
side by sideHit Count Set Name  
result set*DB=USPT; PLUR=YES; OP=ADJ*

<u>L9</u>	L8 and (plurality with virtual with servers)	1	<u>L9</u>
<u>L8</u>	L7 and (virtual adj1 address adj1 space\$)	241	<u>L8</u>
<u>L7</u>	((709/\$)!..CCLS.)	16186	<u>L7</u>
<u>L6</u>	L5 and (709/\$.ccls.)	650	<u>L6</u>
<u>L5</u>	(virtual adj3 (server\$ or space\$))	3650	<u>L5</u>
<u>L4</u>	L1 and (virtual adj1 address adj1 space)	0	<u>L4</u>
<u>L3</u>	L2 and (switch\$ or multiplex\$)	5	<u>L3</u>
<u>L2</u>	L1 and tunnel\$	5	<u>L2</u>
<u>L1</u>	(virtual adj2 (server\$ or lan\$ or wan\$)).ab.	45	<u>L1</u>

END OF SEARCH HISTORY

**WEST** 

L9: Entry 1 of 1

File: USPT

Jun 26, 1990

DOCUMENT-IDENTIFIER: US 4937784 A

TITLE: Distributed interactive processing method in complex system including plural work stations and plural host computers and apparatus using the same

Brief Summary Text (3):

In an interactive processing system such as the time sharing system (TSS), for the user's request issued from a terminal equipment, the syntactical check has been effected on the terminal side as described in the JP-A-60-144839. However, the request itself is analyzed in the virtual address space of a host computer to select a program satisfying the request in the same space. The selected program first arranges the necessary environment, for example, allocates file and effects an OPEN processing thereon, and then executes the requested processing.

Brief Summary Text (10):

In the TSS of the conventional technology, although the syntactical check may be considered to be achieved in a terminal equipment, the request analysis cannot be implemented therein; consequently, there is provided a process (virtual address space) for each terminal to execute programs therein, namely, the request from a terminal is analyzed in the space and the processing environment is established in the same space, thereby executing a processing associated with the request. As a result, although the TSS is suitable for the irregular job to process various kinds of unfixed data, a large load is imposed on the host, which therefore cannot simultaneously process the requests from many terminals.

Brief Summary Text (15):

The object can be accomplished by a method in which a plurality of server processes (virtual address spaces) are provided in the host corresponding to the respective requested and based on a result of an analysis conducted on a processing request in an intelligent terminal, the processing request for other than the intelligent terminal is transmitted to a particular server of a particular host corresponding to the processing request, thereby enabling the server to execute the processing.

Current US Original Classification (1):709/104Current US Cross Reference Classification (1):709/203Current US Cross Reference Classification (2):709/310

Set Name Query  
side by sideHit Count Set Name  
result set

*DB=USPT; PLUR=YES; OP=ADJ*

<u>L4</u>	L1 and (virtual adj1 (server\$ or intranet)).ab.	5	<u>L4</u>
<u>L3</u>	L1 and (virtual with (server\$ or intranet)).ab.	86	<u>L3</u>
<u>L2</u>	L1 and (virtual with (server\$ or intranet))	847	<u>L2</u>
<u>L1</u>	((709/\$)!.CCLS.)	15484	<u>L1</u>

END OF SEARCH HISTORY

**WEST** **Generate Collection**

L4: Entry 1 of 5

File: USPT

Sep 4, 2001

DOCUMENT-IDENTIFIER: US 6286047 B1

TITLE: Method and system for automatic discovery of network services

Abstract Text (1):

A method for identifying services, service elements and dependencies among the services and service elements includes executing first and second phases of discovery. In the first phase, the services and service elements are detected, as well as a first set of dependencies. The second phase is based on results of the first phase and is focused upon detecting inter-service dependencies, i.e., conditions in which proper operation of one service relies upon at least one other service. Various techniques may be used in executing the first phase, including accessing information in a domain name service (DNS) of the network to identify dependencies, as well as services and service elements. Discovery within the first phase may also be based upon recognizing naming conventions. Regarding the second phase, one approach to discovering inter-service dependencies is to deploy discovery agents implemented in computer software to access content of configuration files of applications detected in the first phase. Discovery agents may also be used to monitor connections completed via specified service elements detected in the first phase, such that other inter-service dependencies are identified. As an alternative or additional approach, network probes may be deployed to access information of data packets transmitted between service elements detected in the first phase, with the accessed packet information being used to detect inter-service dependencies. When information of the DNS is accessed in the first phase, the information is used as a basis for determining at least some of (1) groups of service elements that are generally equivalent with respect to executing a particular service within the network, (2) hosts supporting virtual hosting, (3) hosts supporting virtual servers, and (4) name servers.

Current US Original Classification (1):709/224Current US Cross Reference Classification (5):709/202Current US Cross Reference Classification (6):709/217Current US Cross Reference Classification (7):709/226

**WEST** **Generate Collection**

L4: Entry 2 of 5

File: USPT

Jul 18, 2000

DOCUMENT-IDENTIFIER: US 6092178 A

TITLE: System for responding to a resource request

Abstract Text (1):

A trigger is provided in association with a network naming service, such as DNS (Domain Name Service), that handles client requests for an application. The trigger comprises a set of executable instructions referenced by a resource record associated with an identifier of the application. In response to a client request concerning the application, the resource record is retrieved and the instructions are executed. In one implementation of a trigger, a DNS server provides load balancing among a plurality of servers within a network name space (e.g., domain or sub-domain) offering an application program (or replicated service) that is known by a virtual server name. A policy is selected for choosing a preferred server from the plurality of servers according to a specified status or operational characteristic of the application instances, such as the least-loaded instance of the application or the instance with the fastest response time. The policy is encapsulated within multiple levels of objects or modules distributed among the plurality of servers and the DNS server. The objects collect and assemble the servers' status and operational characteristics. The information collected by the objects is analyzed to select the server that best satisfies the selected policy. A client request for the application is received by the DNS server, which retrieves a resource record corresponding to the virtual server name. Within the record is the name of a trigger. The trigger is executed to select, or retrieve an identity of, a server to which the client request is to be directed.

Current US Cross Reference Classification (1):709/105

**WEST** **Generate Collection**

L4: Entry 3 of 5

File: USPT

Feb 9, 1999

DOCUMENT-IDENTIFIER: US 5870550 A

TITLE: Web server employing multi-homed, modular framework

Abstract Text (1):

A Web server is provided having a multi-homed, modular framework. The modular framework allows extensions to the Web server to be easily compiled into the Web server, allowing the extensions to run natively as part of the server instead of incurring the overhead typical of CGI scripts, for example. The multi-homing capabilities of the Web server provide the appearance to Web users of multiple distinct and independent servers, allowing a small company or individual to create the same kind of Web presence enjoyed by larger companies. In effect, multiple virtual servers run on the same physical machine. The Web server as a whole is easily extensible to allow additional capabilities to be provided natively within the Web server itself. Furthermore, each virtual server is independently configurable in order to turn different capabilities on or off or to modify operation of the virtual server. The Web server is also provided with enhanced security features, built-in animation capability, and other features that afford maximum flexibility and versatility.

Current US Original Classification (1):

709/218

Current US Cross Reference Classification (2):

709/219

**WEST** **Generate Collection**

L4: Entry 4 of 5

File: USPT

Feb 11, 1997

DOCUMENT-IDENTIFIER: US 5602992 A

TITLE: System for synchronizing data stream transferred from server to client by initializing clock when first packet is received and comparing packet time information with clock

Abstract Text (1):

An apparatus and method for synchronizing multiple independent data streams in a networked computer system is disclosed. In a computer network having a plurality of computer systems coupled by a communication medium, one of the plurality of computer systems being a server system, a different one of the plurality of computer systems being a client system, a method for synchronizing a data stream transferred from the server system to the client system, the method comprising the steps of: 1) capturing information into a data packet, the capturing step being performed by the server system; 2) storing time information into the data packet, the time information indicating when the capturing step is complete; 3) transferring the data packet to the client system across the communication medium; 4) initializing a virtual server system clock if the data packet is a first data packet in the data stream; 5) retrieving the time information from the data packet; 6) comparing the time information with the virtual server system clock; and 7) processing the information in the data packet if the time information indicates a time equal to a time indicated by the virtual server system clock. The present invention further includes the steps of: 1) scheduling processing of the information in the data packet if the time information indicates a time later than a time indicated by the virtual server system clock; and 2) discarding the data packet if the time information indicates a time earlier than a time indicated by the virtual server system clock.

Current US Original Classification (1):709/248

Set Name Query  
side by sideHit Count Set Name  
result set*DB=USPT; PLUR=YES; OP=ADJ*

<u>L7</u>	L1 and ((virtual adj1 server).same.intranet)	3	<u>L7</u>
<u>L6</u>	L1 and ((virtual adj1 server) with intranet)	0	<u>L6</u>
<u>L5</u>	L1 and (virtual adj1 intranet)	0	<u>L5</u>
<u>L4</u>	L1 and (virtual adj1 (server\$ or intranet)).ab.	5	<u>L4</u>
<u>L3</u>	L1 and (virtual with (server\$ or intranet)).ab.	86	<u>L3</u>
<u>L2</u>	L1 and (virtual with (server\$ or intranet))	847	<u>L2</u>
<u>L1</u>	((709/\$)!.CCLS.)	15484	<u>L1</u>

END OF SEARCH HISTORY

**WEST****Generate Collection****Print****Search Results - Record(s) 1 through 3 of 3 returned.**

1. Document ID: US 6374290 B1

L7: Entry 1 of 3

File: USPT

Apr 16, 2002

DOCUMENT-IDENTIFIER: US 6374290 B1  
TITLE: Self moderated virtual communitiesDetailed Description Text (4):

FIG. 1 illustrates a client server network having virtual servers in accordance with one embodiment of the present invention. Client (i.e., user) computers 10-19 communicate with a Net News Reading Protocol (NNRP) server 50 having a NNRP agent 55. The NNRP server 50 is a proxy caching server connected to a network 70. The network 70 may be an intranet, an internet, a wide area network, a local area network, or other network configuration. The network 70 is connected to a news server 90 containing articles on various topics. One embodiment of an NNRP server for receiving news from a news server is disclosed in co-pending U.S. patent application entitled, "HYBRID NEWS SERVER," application Ser. No. 09/263,587 filed on Mar. 5, 1999 which is incorporated herein by reference.

Current US Original Classification (1):  
709/205Current US Cross Reference Classification (1):  
709/225Current US Cross Reference Classification (2):  
709/313Current US Cross Reference Classification (3):  
709/329[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMD](#) | [Draw Desc](#) | [Image](#)

2. Document ID: US 6108701 A

L7: Entry 2 of 3

File: USPT

Aug 22, 2000

DOCUMENT-IDENTIFIER: US 6108701 A  
TITLE: Soft switch extension for internet protocol applicationsDetailed Description Text (2):

With reference now to the figures and in particular with reference to FIG. 2A, a simplified schematic of the preferred multiple server embodiment of the present invention is depicted. In this embodiment, a plurality of servers 200, 202 are assigned the same IP address on a local area network ("LAN") 204. A router 206 is coupled to the LAN and connects the servers 200, 202 via an Intranet or Internet 208 to a client computer 210. Also coupled to the LAN is a DNS Server 212 that is used

for "name to IP address" translation. The plurality of servers 200, 202 thus appear as one logical host (i.e. a virtual server) 214 to the client 210 and also to the DNS Server 212, because the servers 200, 202 share the same IP address and host name.

Current US Original Classification (1):  
709/224

Current US Cross Reference Classification (1):  
709/203

[Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWD | Drawn Desc | Image]

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3. Document ID: US 5884035 A

L7: Entry 3 of 3

File: USPT

Mar 16, 1999

DOCUMENT-IDENTIFIER: US 5884035 A

TITLE: Dynamic distributed group registry apparatus and method for collaboration and selective sharing of information

Detailed Description Text (84):

Still in FIG. 7a, viewers table 86 contains the list of all valid users or viewers at a given client or firm. This table is used to determine if the specified user or viewer is a member of the client's intranet and access to that client's intranet will only be allowed if the user or viewer is listed in this table. Users or viewers entered in this table are allowed access to all client or firm workgroups that are common, as specified in the WGmembership field of group table 70. Turning now to FIG. 8a, and back to a discussion of domain communications servers, a list of the principal domain communications server URLs is shown. As mentioned above, a domain communications server is implemented, in a preferred embodiment, using AOLserver software, because of its ability to dynamically load shared objects when spawning a virtual server. In a preferred embodiment of the present invention, object-oriented programming techniques are used, since they allow the creation of procedures for objects whose exact type is not known until actual running of the program. Object oriented techniques also permit the system implementer to define and use shared objects--compiled C++ code that is called by more than one function or program. In the AOLserver, for example, which shared object to load is specified to it within an initialization file used when starting AOLServer's NSD process. In a preferred embodiment of the present invention, the shared object named `domainserver.so` (also known as `domainserver.dll` for NT versions), is designated as the shared object to be loaded when the AOLserver is started up.

Current US Original Classification (1):  
709/218

Current US Cross Reference Classification (3):  
709/205

[Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWD | Drawn Desc | Image]

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Generate Collection

Print

Set Name Query  
side by sideHit Count Set Name  
result set*DB=USPT; PLUR=YES; OP=ADJ*

<u>L7</u>	L1 and ((virtual adj1 server\$) and multiplex\$)	5	<u>L7</u>
<u>L6</u>	L4 and (virtual adj1 server\$)	1	<u>L6</u>
<u>L5</u>	L4 and ((virtual adj1 server\$) and multiplex\$)	0	<u>L5</u>
<u>L4</u>	L3 or l2	36	<u>L4</u>
<u>L3</u>	L1 and (virtual adj1 lan).ab.	10	<u>L3</u>
<u>L2</u>	L1 and (vlan).ab.	28	<u>L2</u>
<u>L1</u>	((709/\$)!..CCLS.)	15484	<u>L1</u>

END OF SEARCH HISTORY

**WEST****Generate Collection****Print****Search Results - Record(s) 1 through 10 of 36 returned.**

1. Document ID: US 6535491 B2

L4: Entry 1 of 36

File: USPT

Mar 18, 2003

DOCUMENT-IDENTIFIER: US 6535491 B2

TITLE: Method and apparatus for rapidly reconfiguring computer networks using a spanning tree algorithm

Abstract Text (1):

A method that rapidly reconfigures a computer network having a plurality of devices executing the spanning tree algorithm. First, one or more devices are configured and arranged so that one port, providing connectivity to the root, is in the forwarding state and the remaining ports, providing connectivity to the root, are in the blocked state. Next, one or more of the blocked ports are designated as back-up ports. Upon detection of a failure at the active forwarding port, one of the back-up ports immediately transitions from blocked to forwarding, thereby becoming the new active port for the device. Following the transition to a new active port, dummy multicast messages are transmitted, each containing the source address of an entity directly coupled to the affected device or downstream thereof. By examining the dummy multicast messages, other devices in the network learn to use to the new forwarding port of the affected device. Rapid reconfiguration of the network is also provided upon detection of a new or repaired link or device representing a better path toward the root. The method is also compatible with networks supporting virtual local area network (VLAN) designations and allows load balancing among different VLANs.

Current US Cross Reference Classification (1):709/220Current US Cross Reference Classification (2):709/221Current US Cross Reference Classification (3):709/239

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KM/C	Draw Desc	Image
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2. Document ID: US 6473803 B1

L4: Entry 2 of 36

File: USPT

Oct 29, 2002

DOCUMENT-IDENTIFIER: US 6473803 B1

TITLE: Virtual LAN interface for high-speed communications between heterogeneous computer systems

Abstract Text (1):

Methods and apparatus that enable a first network protocol provider, executing on a

first computer system, and a second network protocol provider, executing on a second computer system which is directly interconnected to the first computer system, to communicate at high speed, with low latency, over the interconnection therebetween such that both systems may use their native mechanisms to communicate with each other without change in those mechanisms, rather than over conventional network communication paths such as Ethernet. An interconnection couples the input/output (I/O) subsystem of the first computer system to the I/O subsystem of the second computer system such data can be transmitted between the systems, and a virtual LAN ("VLAN") device driver executing on the second computer system provides an interface between the interconnection and the native communications mechanisms of the second computer system. The VLAN simulates a conventional network driver such as an NDIS Fiber Distributed Data Interface (FDDI) network interface card (NIC) Miniport driver to the transport protocol driver TCPIP.SYS on the second computer system and exchanges data with the first computer system via a particular line of a LAN station group for delivery to and receipt from the first computer system.

Current US Original Classification (1):

709/238

[ Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWD | Draw Desc | Image ]

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3. Document ID: US 6460088 B1

L4: Entry 3 of 36

File: USPT

Oct 1, 2002

DOCUMENT-IDENTIFIER: US 6460088 B1

TITLE: Method and apparatus for port vector determination at egress

Abstract Text (1):

An integrated multiport switch operating in a packet switched network provides the capability to alter VLAN tags on a port by port basis. An internal rules checker (IRC) employs a modular architecture that enables data frames to be processed simultaneously and increase data throughput. The IRC further generates a port vector, and thereby, outputs a forwarding descriptor that instructs Port Vector FIFO logic (PVF) on how to process the data frame.

Current US Original Classification (1):

709/236

[ Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWD | Draw Desc | Image ]

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4. Document ID: US 6457058 B1

L4: Entry 4 of 36

File: USPT

Sep 24, 2002

DOCUMENT-IDENTIFIER: US 6457058 B1

TITLE: Network switch with hash table look up

Abstract Text (1):

An improved look up mechanism for accessing a RAM to obtain forwarding information for data frames being transported among ports of a high-performance switch is provided. The look up mechanism includes a multi-page look up table and associated hashing technique. A media access control (MAC) address and a virtual local area network (VLAN) identifier are transformed with a hash function to obtain a hash key.

The hash key is an address pointing to a particular entry in the look up table. A virtual first page is also derived from the hash key, which selects a particular physical page of the look up table to be initially accessed each time that MAC address/VLAN pair is used. The look up mechanism may also be used to access a short cut table containing Layer 3 short cut information. In either case, ultimately, the likelihood is increased that a match will be found on the first RAM access, thus maintaining high-speed switch performance.

Current US Original Classification (1):

709/238

Current US Cross Reference Classification (1):

709/245

[Full] [Title] [Citation] [Front] [Review] [Classification] [Date] [Reference] [Sequences] [Attachments] [Claims] [KWC] [Draw Desc] [Image]

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5. Document ID: US 6445709 B1

L4: Entry 5 of 36

File: USPT

Sep 3, 2002

DOCUMENT-IDENTIFIER: US 6445709 B1

TITLE: Method and apparatus for finding a match entry using receive port number embedded in the port vector

Abstract Text (1):

A network switch configured for switching data packets across multiple ports uses an address table to generate frame forwarding information. The switch receives frame information including a source address and destination address along with a virtual local area network (VLAN) ID, if applicable. A decision-making engine searches a network address table to "learn" Medium Access Control (MAC) addresses without having to store receive port numbers by embedding the receive port number in the stored port vector fields.

Current US Cross Reference Classification (2):

709/236

[Full] [Title] [Citation] [Front] [Review] [Classification] [Date] [Reference] [Sequences] [Attachments] [KWC] [Draw Desc] [Image]

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6. Document ID: US 6430621 B1

L4: Entry 6 of 36

File: USPT

Aug 6, 2002

DOCUMENT-IDENTIFIER: US 6430621 B1

TITLE: System using different tag protocol identifiers to distinguish between multiple virtual local area networks

Abstract Text (1):

A method and apparatus that provides for grouping nodes in multiple VLANs using port based VLAN grouping, and explicitly associates one of multiple VLANs with a packet transmitted by the nodes, using IEEE 802.1Q based frame tagging. A switch receives an untagged packet, filters the packet, and based on the contents of the packet, inserts a tag header with a common VLAN identifier and a unique tag protocol identifier (TPID).

Current US Original Classification (1):  
709/238

Current US Cross Reference Classification (1):  
709/227

Current US Cross Reference Classification (2):  
709/230

Current US Cross Reference Classification (3):  
709/245

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [KMD](#) | [Draw Desc](#) | [Image](#)

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7. Document ID: US 6418480 B1

L4: Entry 7 of 36

File: USPT

Jul 9, 2002

DOCUMENT-IDENTIFIER: US 6418480 B1

TITLE: Communication packet including a multicast address and a destination address different than an equivalent to the multicast address

Abstract Text (1):

A switch is provided for use in a virtual communications system having multiple local area networks interconnected by multiple switches through a trunk, which has one or more trunk stations connected directly thereto. The switch includes a first communications port connected directly to a first local area network and a second communications port connected directly to the trunk. The first local area network is within a virtual area network configured to include a second local area network and a trunk station. A switch control detects a communication from the first local area network having a multicast address representing desired destination addresses. The switch control appends a VLAN header having a destination address different than but corresponding to the multicast address to the communication to form a VLAN communication and directs transmission of the VLAN communication to the second communication port for delivery to the multicast addressees.

Current US Original Classification (1):

709/245

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [KMD](#) | [Draw Desc](#) | [Image](#)

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8. Document ID: US 6414958 B1

L4: Entry 8 of 36

File: USPT

Jul 2, 2002

DOCUMENT-IDENTIFIER: US 6414958 B1

TITLE: Four-port secure ethernet VLAN switch supporting SNMP and RMON

Abstract Text (1):

A multi-port switch is provided having an Ethernet switching section for connecting and switching among network devices and includes at least three ports, a network management module operating according to SNMP, and a monitoring module operating according to RMON. The switch can arrange the ports to operate as virtual local area networks ("VLANs"). The switch is secured with a network element that is part of a

network device. In a system including the multi-port switch, an automated teller machine local area network is connected to one port, a customer data LAN is connected to a second port, and a router is connected to a third port. The switch arranges the three port connections into two VLANs, each VLAN including the router. The switch alternately switches between the VLANs in order to enable the ATM LAN and the customer data LAN to communicate with an external network. The switch is secured with or located inside one of the ATMs in the ATM LAN.

Current US Cross Reference Classification (3) :

709/249

[ Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments ]

[ KMC | Drawn Desc | Image ]

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9. Document ID: US 6388995 B1

L4: Entry 9 of 36

File: USPT

May 14, 2002

DOCUMENT-IDENTIFIER: US 6388995 B1

TITLE: Method and apparatus for rapidly reconfiguring computers networks executing the spanning tree algorithm

Abstract Text (1) :

A method that rapidly reconfigures a computer network having a plurality of devices executing the spanning tree algorithm. First, one or more devices are configured and arranged so that one port, providing connectivity to the root, is in the forwarding state and the remaining ports, providing connectivity to the root, are in the blocked state. Next, one or more of the blocked ports are designated as back-up ports. Upon detection of a failure at the active forwarding port, one of the back-up ports immediately transitions from blocked to forwarding, thereby becoming the new active port for the device. Following the transition to a new active port, dummy multicast messages are transmitted, each containing the source address of an entity directly coupled to the affected device or downstream thereof. By examining the dummy multicast messages, other devices in the network learn to use to the new forwarding port of the affected device. Rapid reconfiguration of the network is also provided upon detection of a new or repaired link or device representing a better path toward the root. The method is also compatible with networks supporting virtual local area network (VLAN) designations and allows load balancing among different VLANs.

Current US Cross Reference Classification (3) :

709/218

[ Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments ]

[ KMC | Drawn Desc | Image ]

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10. Document ID: US 6343289 B1

L4: Entry 10 of 36

File: USPT

Jan 29, 2002

DOCUMENT-IDENTIFIER: US 6343289 B1

TITLE: Efficient search and organization of a forwarding database or the like

Abstract Text (1):

A method and apparatus for efficiently searching a forwarding database or similar data structure are provided. According to one aspect of the present invention, the overall average time required to forward a packet from the ingress port of a network device to one or more egress ports may be reduced by attacking the worst case forwarding database search. Data is received at a first port of the network device and a search key is extracted from the data. Typically the search key includes one or more of a source or destination Internet Protocol (IP) address, a source or destination Media Access Control (MAC) address, and/or a Virtual Local Area Network (VLAN) tag. Ultimately, the data is forwarded to a second port of the network device based upon a matching entry located by the search. The search includes retrieving keys from entries of the forwarding database and comparing the search key to the keys until a matching entry is located. The retrieval includes causing a pipelined memory in which the forwarding database is stored to access memory locations in an order that minimizes a worst case search of the forwarding database. For example, a request is made to load a first key from memory that is associated with a database entry and subsequent requests may be made in a pipelined manner to load subsequent keys, whereby the memory is caused to access keys of different entries during consecutive clock cycles.

Current US Cross Reference Classification (2):709/216[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KWIC](#) [Draw Desc](#) [Image](#)[Generate Collection](#)[Print](#)

Term	Documents
(3 OR 2).USPT.	36
(L3 OR L2).USPT.	36

Display Format: [KWIC](#) [Change Format](#)[Previous Page](#)    [Next Page](#)

**WEST****Search Results - Record(s) 11 through 20 of 36 returned.**

11. Document ID: US 6308218 B1

L4: Entry 11 of 36

File: USPT

Oct 23, 2001

DOCUMENT-IDENTIFIER: US 6308218 B1

TITLE: Address look-up mechanism in a multi-port bridge for a local area network

Abstract Text (1):

An address look-up mechanism in a multi-port bridge for controlling use of a memory as a look-up table for appropriately filtering and directing packets. The look-up table includes learned look-up tables, permanent look-up tables and linked lists. As a data packet originating from a node (source node) is received by a corresponding one of the ports (source port) of the multi-port bridge, a look-up cycle and then a learning cycle are each performed. During the learning cycle, an identification of the source port for the packet is stored in the learned look-up tables in association with a hashed node address of the source node. Each existing entry is examined to ensure that the appropriate port identification is stored and to determine whether two or more nodes share a same hashed node address. If two nodes have the same hashed node address, then a linked entry in the linked lists is formed. During the look-up cycle, the packet is examined to determine whether it is intended for a VLAN group, if the packet is to be broadcast to all nodes of the LAN or if the packet is intended for a single destination node. If the packet is intended for a VLAN group, the source node address for the packet is utilized to access an appropriate entry in the permanent table. If the packet is intended to be broadcast to all the nodes of the LAN, the packet is directed to all the ports. If the packet is intended for a single destination node, information stored in the learned look-up tables during learning cycles for prior packets is utilized to identify an appropriate destination port for the packet.

Current US Original Classification (1):709/238Current US Cross Reference Classification (1):709/244           

12. Document ID: US 6304901 B1

L4: Entry 12 of 36

File: USPT

Oct 16, 2001

DOCUMENT-IDENTIFIER: US 6304901 B1

TITLE: Multiple VLAN architecture system

Abstract Text (1):

A system in which a single VLAN architecture spans multiple VLAN transport protocols and technologies, including a method and system in which multiple different VLANs

may be combined in a single enterprise network. Each LAN-switch in the system identifies each frame with an identifier, and associates that identifier with particular VLAN identifiers for each type of VLAN technology. When a frame is bridged or routed from a first type of VLAN to a second type of VLAN, the first VLAN encapsulation is removed and the second VLAN encapsulation is added, with appropriate change in the VLAN identifier for the frame or packet. The identifier may also be implicit for the frame, such as when a particular set of sender's MAC addresses are identified with a particular VLAN. Individual VLANs, of whatever architecture, may be added, configured or reconfigured, modified, or deleted, using control tools associated with the multiple VLAN architecture system. Individual ports may be associated with particular VLANs, or may be designated "dynamic" so that frames or packets associated with those ports are associated with particular VLANs in response to source or destination addresses or other information.

Current US Original Classification (1):

709/221

Current US Cross Reference Classification (7):

709/236

Current US Cross Reference Classification (8):

709/242

[ Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments ]

[ KWIC | Draw Desc | Image ]

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13. Document ID: US 6269404 B1

L4: Entry 13 of 36

File: USPT

Jul 31, 2001

DOCUMENT-IDENTIFIER: US 6269404 B1

TITLE: Virtual network architecture for connectionless LAN backbone

Abstract Text (1):

Network traffic management is achieved based on automatically setting up a plurality of virtual networks (VNets) within a single large virtual LAN. Multicast/broadcast traffic is confined to the VNET of the source, without imposing constraints on layer two addressing within the virtual LAN. VNets are domains of users of a virtual LAN which include members of logical networks defined at layer three or higher. One method includes transferring a multi-destination packet originating from a particular node in the virtual LAN by tunnelling across a connectionless backbone network to a virtual net server. The virtual net server translates the multi-destination packet to a plurality of tunneled messages identifying nodes authorized to receive multi-destination packets from members of the particular VNET which originated the packet. The tunneled messages are then forwarded from the virtual net server to the authorized nodes. This way, multi-destination packets, such as advertisement or discovery packets, are confined to a single VNET. By confining the multi-destination packets to a single VNET, unicast packets generated within the virtual LAN are then also naturally confined to that VNET.

Current US Original Classification (1):

709/238

Current US Cross Reference Classification (1):

709/245

[ Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments ]

[ KWIC | Draw Desc | Image ]

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14. Document ID: US 6266705 B1

L4: Entry 14 of 36

File: USPT

Jul 24, 2001

DOCUMENT-IDENTIFIER: US 6266705 B1

TITLE: Look up mechanism and associated hash table for a network switch

Abstract Text (1):

An improved look up mechanism for accessing a RAM to obtain forwarding information for data frames being transported among ports of a high-performance switch is provided. The look up mechanism includes a multi-page look up table and associated hashing technique. A media access control (MAC) address and a virtual local area network (VLAN) identifier are transformed with a hash function to obtain a hash key. The hash key is an address pointing to a particular entry in the look up table. A virtual first page is also derived from the hash key, which selects a particular physical page of the look up table to be initially accessed each time that MAC address/VLAN pair is used. The look up mechanism may also be used to access a short cut table containing Layer 3 short cut information. In either case, ultimately, the likelihood is increased that a match will be found on the first RAM access, thus maintaining high-speed switch performance.

Current US Original Classification (1):709/238[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#)

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 15. Document ID: US 6223218 B1

L4: Entry 15 of 36

File: USPT

Apr 24, 2001

DOCUMENT-IDENTIFIER: US 6223218 B1

TITLE: System and method for automatically setting VLAN configuration information

Abstract Text (1):

An automatic VLAN configuration information setting system comprising an automatic VLAN configuration information setting device and one or more switching hubs, for setting VLAN configuration information of the switching hubs, is proposed. When a terminal is added to or removed from an Ethernet port of a switching hub by the user, a VLAN alteration request section of the switching hub detects the event, and a VLAN alteration request is transmitted to the automatic VLAN configuration information setting device. In a database of the automatic VLAN configuration information setting device, VLAN detailed information concerning all the VLANs managed by the automatic VLAN configuration information setting device is stored. A VLAN configuration instruction text editing section of the automatic VLAN configuration information setting device edits a VLAN configuration instruction text (an instruction scenario) by referring to the VLAN alteration request and the VLAN detailed information. The VLAN detailed information stored in the database is updated according to the VLAN configuration instruction text, and the VLAN configuration information of the switching hub is updated according to the VLAN configuration instruction text, thereby VLAN configuration information of the switching hubs is automatically set and updated without efforts by network administrators.

Current US Original Classification (1):709/221Current US Cross Reference Classification (5):

709/220Current US Cross Reference Classification (6) :709/223[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Drawn Desc](#) | [Image](#)

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 16. Document ID: US 6219699 B1

L4: Entry 16 of 36

File: USPT

Apr 17, 2001

DOCUMENT-IDENTIFIER: US 6219699 B1

TITLE: Multiple VLAN Architecture system

Abstract Text (1) :

A system in which a single VLAN architecture spans multiple VLAN transport protocols and technologies, including a method and system in which multiple different VLANs may be combined in a single enterprise network. Each LAN-switch in the system identifies each frame with an identifier, and associates that identifier with particular VLAN identifiers for each type of VLAN technology. When a frame is bridged or routed from a first type of VLAN to a second type of VLAN, the first VLAN encapsulation is removed and the second VLAN encapsulation is added, with appropriate change in the VLAN identifier for the frame or packet. The identifier may also be implicit for the frame, such as when a particular set of sender's MAC addresses are identified with a particular VLAN. Individual VLANs, of whatever architecture, may be added, configured or reconfigured, modified, or deleted, using control tools associated with the multiple VLAN architecture system. Individual ports may be associated with particular VLANs, or may be designated "dynamic" so that frames or packets associated with those ports are associated with particular VLANs in response to source or destination addresses or other information.

Current US Original Classification (1) :709/221Current US Cross Reference Classification (3) :709/226[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Drawn Desc](#) | [Image](#)

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 17. Document ID: US 6128666 A

L4: Entry 17 of 36

File: USPT

Oct 3, 2000

DOCUMENT-IDENTIFIER: US 6128666 A

TITLE: Distributed VLAN mechanism for packet field replacement in a multi-layered switched network element using a control field/signal for indicating modification of a packet with a database search engine

Abstract Text (1) :

A system and method for updating packet headers using hardware that maintains the high performance of the network element. In one embodiment, the system includes an input port process (IPP) that buffers the input packet received and forwards header information to the search engine. The search engine searches a database maintained on the switch element to determine the type of the packet. In one embodiment, the

type may indicate whether the packet can be routed in hardware. In another embodiment, the type may indicate whether the packet supports VLANs. The search engine sends the packet type information to the IPP along with the destination address (DA) to be updated if the packet is to be routed, or a VLAN tag if the packet has been identified to be forwarded to a particular VLAN. The IPP, during transmission of the packet to a packet memory selectively replaces the corresponding fields, e.g., DA field or VLAN tag field; the modified packet is stored in the packet memory. Associated with the packet memory are control fields containing control field information conveyed to the packet memory by the IPP. An output port process (OPP) reads the modified input packet and the control field information and selectively performs additional modifications to the modified input packet and issue control signals to the output interface (i.e., MAC). The MAC, based upon the control signals, replaces the source address field with the address of the MAC and generates a CRC that is appended to the end of the packet.

Current US Original Classification (1):

709/238

Current US Cross Reference Classification (4):

709/203

Current US Cross Reference Classification (5):

709/215

Current US Cross Reference Classification (6):

709/218

Current US Cross Reference Classification (7):

709/236

Current US Cross Reference Classification (8):

709/239

Current US Cross Reference Classification (9):

709/242

Current US Cross Reference Classification (10):

709/245

Current US Cross Reference Classification (11):

709/246

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMD](#) | [Draw Desc](#) | [Image](#)

18. Document ID: US 6128665 A

L4: Entry 18 of 36

File: USPT

Oct 3, 2000

DOCUMENT-IDENTIFIER: US 6128665 A

TITLE: System for broadcasting messages to each of default VLAN ports in subset of ports defined as VLAN ports

Abstract Text (1):

A data transmission network having a port-based default VLAN that limits flooding to other VLANs. The default VLAN receives a data packet, ascertains the destination address of the packet, and then determines if the destination port is one of the default VLAN ports. The data packet is transmitted to the destination port if it is one of the default VLAN ports, or to each of the default VLAN ports if the destination port is not one of the default VLAN ports. The data packet is not

transmitted to any other non-default VLAN port.

Current US Original Classification (1):

709/238

Current US Cross Reference Classification (3):

709/242

Current US Cross Reference Classification (4):

709/244

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMD](#) | [Draw Desc](#) | [Image](#)

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19. Document ID: US 6112251 A

L4: Entry 19 of 36

File: USPT

Aug 29, 2000

DOCUMENT-IDENTIFIER: US 6112251 A

TITLE: Virtual local network for sending multicast transmissions to trunk stations

Abstract Text (1):

A switch is provided for use in a virtual communications system having multiple local area networks interconnected by multiple switches through a trunk, which has one or more trunk stations connected directly thereto. The switch includes a first communications port connected directly to a first local area network and a second communications port connected directly to the trunk. The first local area network is within a virtual area network configured to include a second local area network and a trunk station. A switch control detects a communication from the first local area network having a multicast address representing desired destination addresses. The switch control appends a VLAN header having a destination address different than but corresponding to the multicast address to the communication to form a VLAN communication and directs transmission of the VLAN communication to the second communication port for delivery to the multicast addressees.

Current US Original Classification (1):

709/249

Current US Cross Reference Classification (2):

709/245

Current US Cross Reference Classification (3):

709/250

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMD](#) | [Draw Desc](#) | [Image](#)

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20. Document ID: US 6101188 A

L4: Entry 20 of 36

File: USPT

Aug 8, 2000

DOCUMENT-IDENTIFIER: US 6101188 A

TITLE: Internetworking router

Abstract Text (1):

The object of the present invention is to accommodate physical segments of LANs into

a switching hub substituting them for virtual LANs without modifying software of terminals or setting of the terminal and provide a routing function of the third layer without deteriorating the degree of freedom in virtual LAN setting of the switching hub. The internetworking router of the present invention includes LAN controlling means 1, packet memory 2, bridge processing means 3, table memory 4, routing processing means 5, table memory 6, free buffer queue 7, reception buffer queue 8 and transmission buffer queue 9 between LAN controlling means 1 and bridge processing means 3, and reception buffer queue 10 and transmission buffer queue 11 between bridge processing means 3 and routing processing means 5. Table memory 4 includes bridge group table 41 and address learning tables 42.sub.1 to 42.sub.n. Table memory 6 includes routing table 61 and ARP table 62.

Current US Cross Reference Classification (4) :709/220[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KWIC](#) [Draw Desc](#) [Image](#)[Generate Collection](#)[Print](#)

Term	Documents
(3 OR 2).USPT.	36
(L3 OR L2).USPT.	36

Display Format: [KWIC](#) [Change Format](#)[Previous Page](#)    [Next Page](#)

**WEST****Search Results - Record(s) 21 through 30 of 36 returned.**

21. Document ID: US 6085238 A

L4: Entry 21 of 36

File: USPT

Jul 4, 2000

DOCUMENT-IDENTIFIER: US 6085238 A

TITLE: Virtual LAN system

Abstract Text (1):

A virtual LAN system forms a virtual group which is based on elements having physical attribute or logical attribute and constituting a virtual LAN, sets a client address and priority of the virtual group in a virtual group registration table, and allocates unicast and broadcast traffic bands in group units.

Current US Original Classification (1):709/223Current US Cross Reference Classification (2):709/243

22. Document ID: US 6047325 A

L4: Entry 22 of 36

File: USPT

Apr 4, 2000

DOCUMENT-IDENTIFIER: US 6047325 A

TITLE: Network device for supporting construction of virtual local area networks on arbitrary local and wide area computer networks

Abstract Text (1):

A network device that translates addresses of machines on physically separate networks and filters packets at the link, network and transport layers implements a virtual LAN over interconnected computer networks transparent to the computer networks. Using authentication and encryption, a secure connection between these network devices over a public wide area network implements a virtual private network and enables the definition of virtual LANs over the virtual private network. The network device has three tables for network address translation, routing, and filtering. A controller processes each incoming packet by translating network addresses to determine the destination of the packet, routing the packet to the determined location and filtering the packet according to filters defined for traffic between the source destination of the packet. If the packet is to be directed to a wide area network, encryption and authentication procedures can be provided to ensure secure transmission of the packet.

Current US Original Classification (1):709/227

Current US Cross Reference Classification (1) :  
709/238

Current US Cross Reference Classification (2) :  
709/239

Current US Cross Reference Classification (3) :  
709/245

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMD](#) | [Draw Desc](#) | [Image](#)

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23. Document ID: US 6041358 A

L4: Entry 23 of 36

File: USPT

Mar 21, 2000

DOCUMENT-IDENTIFIER: US 6041358 A

TITLE: Method for maintaining virtual local area networks with mobile terminals in an ATM network

Abstract Text (1) :

A method and system are provided for implementing virtual local area networks (VLANs) over ATM using LAN over ATM emulation technology. Server nodes which provide address registration/resolution and which enable multicast and broadcast routing on each VLAN are interconnected into multiple trees. The root server nodes of each tree are interconnected according to a hypercube topology. Data structures for maintaining the locations and routing information of mobile terminals is provided. Methods for constructing and updating the data structures when a mobile terminal moves from location to another also provided. Methods are also provided for routing packets using the data structures to and from mobile terminals.

Current US Original Classification (1) :  
709/238

Current US Cross Reference Classification (5) :  
709/215

Current US Cross Reference Classification (6) :  
709/223

Current US Cross Reference Classification (7) :  
709/228

Current US Cross Reference Classification (8) :  
709/239

Current US Cross Reference Classification (9) :  
709/243

Current US Cross Reference Classification (10) :  
709/249

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMD](#) | [Draw Desc](#) | [Image](#)

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24. Document ID: US 6041166 A

L4: Entry 24 of 36

File: USPT

Mar 21, 2000

DOCUMENT-IDENTIFIER: US 6041166 A

TITLE: Virtual network architecture for connectionless LAN backbone

Abstract Text (1):

Network traffic management is achieved based on automatically setting up a plurality of virtual networks (VNETs) within a single large virtual LAN. Multicast/broadcast traffic is confined to the VNET of the source, without imposing constraints on layer two addressing within the virtual LAN. VNETs are domains of users of a virtual LAN which include members of logical networks defined at layer three or higher. One method includes transferring a multi-destination packet originating from a particular node in the virtual LAN by tunnelling across a connectionless backbone network to a virtual net server. The virtual net server translates the multi-destination packet to a plurality of tunneled messages identifying nodes authorized to receive multi-destination packets from members of the particular VNET which originated the packet. The tunneled messages are then forwarded from the virtual net server to the authorized nodes.

Abstract Text (2):

This way, multi-destination packets, such as advertisement or discovery packets, are confined to a single VNET. By confining the multi-destination packets to a single VNET, unicast packets generated within the virtual LAN are then also naturally confined to that VNET.

Current US Original Classification (1):709/238Current US Cross Reference Classification (1):709/220Current US Cross Reference Classification (2):709/221Current US Cross Reference Classification (3):709/230[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#)

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 25. Document ID: US 6038608 A

L4: Entry 25 of 36

File: USPT

Mar 14, 2000

DOCUMENT-IDENTIFIER: US 6038608 A

TITLE: Virtual LAN system

Abstract Text (1):

By providing a plurality of virtual LAN's such that ports communicating according to one protocol are grouped and communication is performed between the ports in the group, a communication is possible according to a plurality of protocols and it is possible to enter into other virtual LAN's than a virtual LAN to which a connection is made.

Current US Original Classification (1):709/238Current US Cross Reference Classification (6):709/218

Current US Cross Reference Classification (7):  
709/249

[Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments]

[KWD | Draw Desc | Image]

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26. Document ID: US 6035405 A

L4: Entry 26 of 36

File: USPT

Mar 7, 2000

DOCUMENT-IDENTIFIER: US 6035405 A

TITLE: Secure virtual LANs

Abstract Text (1):

The present invention discloses a method for securely adding a new end station to a local area network (LAN) segmented into a number of virtual local area networks (VLANs). The invention is applicable to various types of LANs such as Ethernet and token ring. The LAN comprises an authentication server (AS) which interacts with each new end station before connection to a VLAN is allowed. The method involves the AS administering a test to the new end station, which may involve prompting the new end station for a password or asking it to encrypt a given number using a secret algorithm known only to the new end station and to the AS. The AS examines the results of this test and determines whether the new end station is permitted to join the VLAN. For added security, the new end station can verify authenticity of the AS by administering a test of its own, which may consist of prompting the AS for a password of its own or asking it to encrypt a new number, the new end station subsequently determining whether the AS is indeed genuine before beginning to transmit any further information. In this way, an end station cannot join a VLAN without authentication by the AS and a legitimate end station can verify whether the test it is asked to pass comes from a legitimate source, thereby avoiding network security breaches.

Current US Cross Reference Classification (1):

709/227

[Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments]

[KWD | Draw Desc | Image]

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27. Document ID: US 6035105 A

L4: Entry 27 of 36

File: USPT

Mar 7, 2000

DOCUMENT-IDENTIFIER: US 6035105 A

TITLE: Multiple VLAN architecture system

Abstract Text (1):

A system in which a single VLAN architecture spans multiple VLAN transport protocols and technologies, including a method and system in which multiple different VLANs may be combined in a single enterprise network. Each LAN-switch in the system identifies each frame with an identifier, and associates that identifier with particular VLAN identifiers for each type of VLAN technology. When a frame is bridged or routed from a first type of VLAN to a second type of VLAN, the first VLAN encapsulation is removed and the second VLAN encapsulation is added, with appropriate change in the VLAN identifier for the frame or packet. The identifier may also be implicit for the frame, such as when a particular set of sender's MAC

addresses are identified with a particular VLAN. Individual VLANs, of whatever architecture, may be added, configured or reconfigured, modified, or deleted, using control tools associated with the multiple VLAN architecture system. Individual ports may be associated with particular VLANs, or may be designated "dynamic" so that frames or packets associated with those ports are associated with particular VLANs in response to source or destination addresses or other information.

Current US Original Classification (1):

709/236

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMC](#) | [Draw Desc](#) | [Image](#)

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28. Document ID: US 6032194 A

L4: Entry 28 of 36

File: USPT

Feb 29, 2000

DOCUMENT-IDENTIFIER: US 6032194 A

TITLE: Method and apparatus for rapidly reconfiguring computer networks

Abstract Text (1):

A method that rapidly reconfigures a computer network having a plurality of devices executing the spanning tree algorithm. First, one or more devices are configured and arranged so that one port, providing connectivity to the root, is in the forwarding state and the remaining ports, providing connectivity to the root, are in the blocked state. Next, one or more of the blocked ports are designated as back-up ports. Upon detection of a failure at the active forwarding port, one of the back-up ports immediately transitions from blocked to forwarding, thereby becoming the new active port for the device. Following the transition to a new active port, dummy multicast messages are transmitted, each containing the source address of an entity directly coupled to the affected device or downstream thereof. By examining the dummy multicast messages, other devices in the network learn to use to the new forwarding port of the affected device. Rapid reconfiguration of the network is also provided upon detection of a new or repaired link or device representing a better path toward the root. The method is also compatible with networks supporting virtual local area network (VLAN) designations and allows load balancing among different VLANs.

Current US Original Classification (1):

709/239

Current US Cross Reference Classification (10):

709/221

Current US Cross Reference Classification (11):

709/224

Current US Cross Reference Classification (12):

709/238

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

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29. Document ID: US 6023563 A

L4: Entry 29 of 36

File: USPT

Feb 8, 2000

DOCUMENT-IDENTIFIER: US 6023563 A

TITLE: Networking switch having the network presence of a bridge

Abstract Text (1):

A Network Switch and related method are disclosed for handling large amounts of internetwork message traffic employing internetwork protocols in a way substantially as efficient as a bridge handles network traffic within a network without the complexity and expense related to employing a full router. The Network Switch features database means for correlating MAC addresses, network addresses, network switch port addresses and VLAN configuration. The Network Switch maintains the network presence of a bridge (i.e., it does not have its own MAC or network address) and operates promiscuously by having internetwork traffic travel through the Network Switch and entering address data of the data packets. The Network Switch thus learns the network topology and subsequently redirects and re-addresses packets addressed to a router and transmits them to their destination MAC address. In this way, the workload on the router is greatly reduced. Any packet having an unknown address is forwarded to the router as originally sent. The related method discloses an internetwork configuration featuring a plurality of networks connected with at least one Network Switch device and at least one router, and serves to alleviate the workload which had been placed entirely on the router according to prior art configurations. The Network Switch also features various modes of operation for handling address resolution requests.

Current US Original Classification (1):

709/249

Current US Cross Reference Classification (3):

709/230

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KIND](#) | [Draw Desc](#) | [Image](#)

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30. Document ID: US 6016318 A

L4: Entry 30 of 36

File: USPT

Jan 18, 2000

DOCUMENT-IDENTIFIER: US 6016318 A

TITLE: Virtual private network system over public mobile data network and virtual LAN

Abstract Text (1):

In a virtual private network system accessed by an internet, a virtual local area network (LAN) is connected to a LAN emulation server and IAN emulation clients, and a router is connected between the internet and the virtual LAN. Also, a public mobile data network is connected to a location register and mobile data subscriber processing units, and a data gateway is connected between the internet and the public mobile data networks. Further, a virtual private network gateway is connected between the virtual LAN and the public mobile data network. A mobile data terminal having one IP address and one public network address and can be connected to either one of the LAN emulation clients or one of the mobile data subscriber processing units.

Current US Cross Reference Classification (3):

709/249

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

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Term	Documents
(3 OR 2).USPT.	36
(L3 OR L2).USPT.	36

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**WEST****Search Results - Record(s) 31 through 36 of 36 returned.**

31. Document ID: US 5968126 A

L4: Entry 31 of 36

File: USPT

Oct 19, 1999

DOCUMENT-IDENTIFIER: US 5968126 A

TITLE: User-based binding of network stations to broadcast domains

Abstract Text (1):

A broadcast or multicast message from a network station is forwarded only to stations in the same virtual broadcast domain (VBD) as the sending station. In some embodiments, a VBD is virtual network (VLAN) or a workgroup (a group of stations, possibly within a VLAN). A membership of a network station in a VBD is determined based on the user who logged on to the station. When the station is first powered up, it is bound to a "default" VBD. When a user logs on, the VBD(s) assigned to the user are determined, and the user's station is switched to the VBD(s). When the user logs off, the user's station is returned to the default VBD.

Current US Original Classification (1):709/225

32. Document ID: US 5920699 A

L4: Entry 32 of 36

File: USPT

Jul 6, 1999

DOCUMENT-IDENTIFIER: US 5920699 A

TITLE: Broadcast isolation and level 3 network switch

Abstract Text (1):

A network switch comprising a switching Application Specific Integrated Circuit (ASIC) and a Virtual Switching Engine (VSE) connected to a plurality of ports. The switching ASIC has a high-speed memory table which enables it to look up addresses that it has previously obtained and to forward unicast packets to said addresses. The VSE is a CPU that makes switching decisions outside of the ASIC and keeps track of any unknown addresses, forwarding the packets out the appropriate ports and answers broadcast packets by proxy for all known addresses without forwarding any of the packets down the VLANs, thereby freeing the VLAN bandwidth from excessive traffic. The system requires no user configuration because the switching methodology is self-adaptive to the network in which it is inserted and has the ability to perform router functions such as level 2 and 3 switching, spanning tree protocols and compatibility with Internetwork Packet and Internetwork Packet Exchange networks.

Current US Original Classification (1):709/225

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KMNC	Draw Desc	Image
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33. Document ID: US 5892922 A

L4: Entry 33 of 36

File: USPT

Apr 6, 1999

DOCUMENT-IDENTIFIER: US 5892922 A

TITLE: Virtual local area network memory access system

Abstract Text (1):

A VLAN memory access system to provide VLAN address table look-ups with the ability to simultaneously do processor read cycles or processor write cycles to the same memory structure with anatomical accesses. The system encompasses the interaction between a memory look-up table that stores the slot allowed transition bit mask for a multi-slot hub based VLAN switch, a switch processor interface that is used to upgrade the memory access table by writing entries into the table or reading the table to verify its contents, and a look-up processor that uses the VLAN table to make forwarding decisions on the destination of a packet based on the value read from the VLAN memory look-up table. The VLAN table accesses must be arbitrated between the look-up processor, which has the highest priority, and read or write accesses from the switch processor. The look-up processor takes the VLAN ID field of a packet and uses this as the address of the slot allowed transmit bit mask to be applied to the destination slot bit mask. This logical AND function is used to determine the final bit mask of slots that will receive this packet.

Current US Original Classification (1):709/238

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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34. Document ID: US 5892912 A

L4: Entry 34 of 36

File: USPT

Apr 6, 1999

DOCUMENT-IDENTIFIER: US 5892912 A

TITLE: Method of managing virtual networks using a virtual network identifier

Abstract Text (1):

A method is provided for managing virtual networks wherein switching hubs, each having ports to which nodes are respectively connected and having a bridging function, are interconnected via an ATM network, and predetermined ones of the ports of the switching hubs are grouped in order to construct virtual LANs. Data from a source node is transmitted to nodes belonging to the same group as the source node. A VLAN server, which stores MAC addresses of these nodes and VLAN identifiers in association with each other, is connected to the ATM network and collectively manages all nodes by means of the MAC addresses. The switching hub makes an inquiry for a VLAN identifier, and reconstructs or modifies the VLAN in accordance with a VLAN identifier responded from the VLAN server.

Current US Cross Reference Classification (3):709/218

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KWD](#) | [Draw Desc](#) | [Image](#) 35. Document ID: US 5878232 A

L4: Entry 35 of 36

File: USPT

Mar 2, 1999

DOCUMENT-IDENTIFIER: US 5878232 A

TITLE: Dynamic reconfiguration of network device's virtual LANs using the root identifiers and root ports determined by a spanning tree procedure

Abstract Text (1):

A system and method of configuring VLANs of a multiple port bridging device by merging potentially conflicting VLANs. One or more VLANs are first defined by the user, and equivalent and subset VLANs are merged. The spanning tree procedure is then performed to determine a root identifier and a root port for each VLAN. The root identifier of each VLAN is compared with the other VLANs, and if equal, the root ports of the two VLANs are compared. If the root identifiers are the same and if the root ports are different for any two VLANs, the two VLANs are merged into a new VLAN. To merge two VLANs, all of the ports of both VLANs are combined to define a new VLAN. Preferably, each VLAN is compared with every other VLAN in this manner. The spanning tree procedure is then executed for the new VLAN, which is then compared to the other VLANs in the same manner. Furthermore, if the root identifiers and the root ports are equal, then it is determined if any shared port of the two VLANs is blocked for one and not the other. If so, the two VLANs are merged into a new VLAN.

Current US Original Classification (1):709/249Current US Cross Reference Classification (1):709/224[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KWD](#) | [Draw Desc](#) | [Image](#) 36. Document ID: US 5752003 A

L4: Entry 36 of 36

File: USPT

May 12, 1998

DOCUMENT-IDENTIFIER: US 5752003 A

TITLE: Architecture for managing traffic in a virtual LAN environment

Abstract Text (1):

Network traffic management is achieved based on automatically setting up a plurality of virtual networks (VNETs) within a single large virtual LAN. Multicast/broadcast traffic is confined to the VNET of the source, without imposing constraints on layer two addressing within the virtual LAN. VNETs are domains of users of a virtual LAN which include members of logical networks defined at layer three or higher. One method includes transferring a multi-destination packet originating from a particular node in the virtual LAN by a point-to-point path to a virtual net server. The virtual net server translates the multi-destination packet to a plurality of directed messages identifying nodes authorized to receive multi-destination packets from members of the particular VNET which originated the packet. The directed messages are then forwarded from the virtual net server to the authorized nodes. This way, multi-destination packets, such as advertisement or discovery packets, are confined to a single VNET. By confining the multi-destination packets to a single

VNET, unicast packets generated within the virtual LAN are then also naturally confirmed to that VNET.

Current US Original Classification (1) :  
709/223

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(L3 OR L2).USPT.	36

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